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EXAMINER

LEE, SIN J

ART UNIT	PAPER NUMBER
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1795

NOTIFICATION DATE	DELIVERY MODE
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09/05/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
eOAPilot@kmob.com

DETAILED ACTION

1. Claims 6 and 7 are canceled claims.
2. In view of the amendment, previous 102(e) rejection over Kinsho et al'818 is hereby withdrawn.
3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

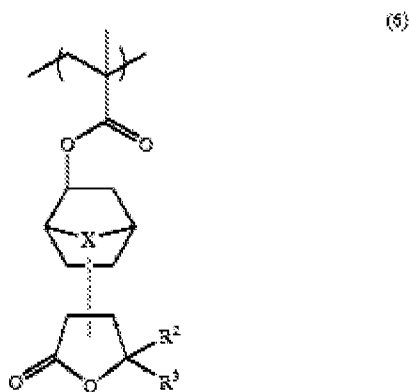
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Claim Rejections - 35 USC § 103

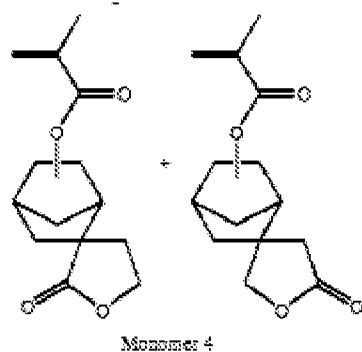
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-5 and 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsho et al (US 6,746,818 B2).

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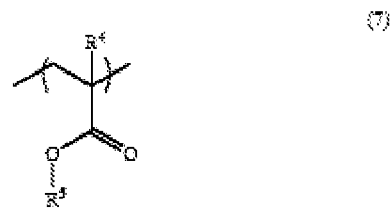
Kinsho teaches (col.19, lines 19-39) a polymer having recurring units of the following formula (6) shown below;



Specifically, in Example 4, Kinsho teaches the following compounds as the monomers that form the recurring unit of formula (6);



Kinsho also teaches (col.19, lines 65-67, col.20, lines 1-39) that in a preferred embodiments, recurring units of following formula (7) can be introduced in the polymer;



As examples of R5 (which is a tertiary alkyl group of 4-20 carbon atoms), Kinsho teaches 2-methyl-2-adamantyl. Based on Kinsho's teachings, it

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would have been obvious to one skilled in the art to include the recurring unit of formula (7), in which R5 is 2-methyl-2-adamantyl, into Kinsho's polymer with a reasonable expectation of obtaining a photoresist composition which exhibits firm adhesion and high transparency when processed by photolithography using light with a wavelength of less than 300 nm.

Kinsho does not teach present repeat unit (IV). However, a resin containing such repeating unit (i.e., the unit derived from 3-hydroxy-1-adamantyl-(meth)acrylate) is known in the art to improve adhesion of the resist composition to a substrate as evidenced by Uetani - see [0007] in which it is stated that by adding a repeat unit of 3-hydroxy-1-adamantyl (meth)acrylate into the resin, one obtains a further improved adhesion to a substrate). Since Kinsho is also trying to achieve a photoresist composition which exhibits firm adhesion to substrates, it would have been obvious to one skilled in the art to further include the repeat unit of 3-hydroxy-1-adamantyl-(meth)acrylate in Kinsho's polymer in order to further enhance the adhesion of his resist composition onto a substrate.

Kinsho teaches (col.20, 40-67) a positive resist composition containing his polymer, a photoacid generator (such as triphenylsulfonium trifluoromethanesulfonate) and an organic solvent. Kinsho also teaches the use of a basic compound (see col.21, lines 21-26). Using Kinsho's resist composition, a resist pattern is formed by applying the resist composition onto a substrate, heat treating the film, exposing it to high energy radiation having a wavelength of less than 300 nm or an e-beam through a photomask, optionally heat treating the exposed film, and developing it with a developer (see col.21,

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lines 27-33). Thus, Kinsho in view of Uetani would render obvious present inventions of claims 1, 3, 4, 8-11, 14 and 15.

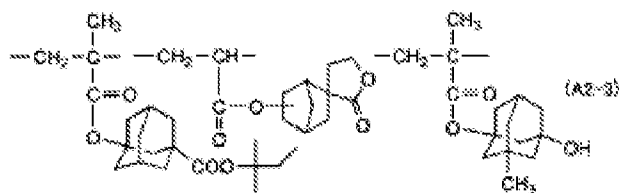
With respect to present claims 2 and 5, Kinsho teaches (see col.20, lines 30-33) that his polymer is preferably composed of 5-80 mol% of units of formula (6) shown above and 10-80 mol% of units of formula (7) shown above. Since these ranges overlap with present ranges of claims 2 and 5, the prior art's teaching renders present ranges prima facie obvious. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a prima facie case of obviousness would exist which may be overcome by a showing of unexpected results, In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Thus, Kinsho's teaching renders obvious present inventions of claims 2 and 5.

With respect to present claims 12 and 13, Kinsho teaches a mixture of propylene glycol monomethyl ether acetate and another solvent as his solvent. As examples of other solvents, Kinsho teaches ethyl lactate (see col.21, lines 1-20). It would have been obvious to one skilled in the art to use the combination of propylene glycol monomethyl ether acetate and ethyl lactate as Kinsho's solvents with a reasonable expectation of obtaining a photoresist composition having firm adhesion and high transparency when processed by ArF excimer laser light. Thus, Kinsho's teaching renders obvious present inventions of claims 12 and 13.

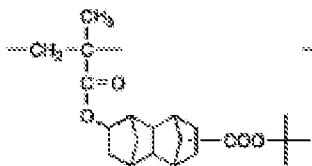
6. Claims 1-5 and 8-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato (JP2003-233187 and its machine assisted English translation provided by JPO).

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Sato teaches (see JPO English abstract) a positive resist composition reduced in surface roughness in etching excellent in resolving power and defocus latitude in contact hole pattern formation. Specifically in Example 3 (see Table 3 in [0204] and see also [0205]-[0206] and [0199]), Sato teaches a composition containing Resin (A2-3) which is shown below, a photoacid generator (PAG4-52 and PAG4-67 shown in [0148] and [0150]), a basic compound, a surfactant and solvents (propylene glycol monomethyl ether acetate and propylene glycol monomethyl ether);



Sato also teaches (see [0054]) the equivalence of the first repeat unit shown above and the following repeat unit;



It would have been obvious to one skilled in the art to replace the first repeat unit of Sato's Resin ((A2-3) with the latter repeat unit with a reasonable expectation of obtaining a positive resist composition reduced in surface roughness in etching excellent in resolving power and defocus latitude in contact hole pattern formation. The last repeat unit of Resin (A2-3) fits the general formula (IIIa) shown in [0061], in which R32 can be an alkyl group as well as a hydrogen atom (see [0061]-[0062]). Based on such teaching, it would have been obvious to one skilled in the art to replace the methyl group in the last repeat unit of Resin (A2-3) with a hydrogen atom

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with a reasonable expectation of obtaining a positive resist composition reduced in surface roughness in etching excellent in resolving power and defocus latitude in contact hole pattern formation. Thus, Sato's teaching renders obvious present inventions of claims 1-5, 8-11, 14-24, 27 and 28.

With respect to present claims 12, 13, 25 and 26, Sato teaches the equivalence of the solvent propylene glycol monomethyl ether and ethyl lactate (see [0184]). Thus, it would have been obvious to one skilled in the art to use the solvents propylene glycol monomethyl ether acetate and ethyl lactate in Sato's Example 3 with a reasonable expectation of obtaining a positive resist composition reduced in surface roughness in etching excellent in resolving power and defocus latitude in contact hole pattern formation. Thus, Sato's teaching renders obvious present inventions of claims 12, 13, 25 and 26.

Response to Arguments

7. Applicants argue that Uetani teaches that improvement of adhesion to a substrate cannot be achieved only by including a unit derived from 3-hydroxy-1-adamantyl-(meth)acrylate and that his effect requires the entire specific resin used in Uetani. Thus, applicants argue that it would not be obvious to use only a unit derived from 3-hydroxy-1-adamantyl (Meth)acrylate as described by Uetani, rather than the entire resin, in the invention of Kinsho. The Examiner disagrees. Uetani clearly states (in [0007]) that after further studies, they have found that by including the repeat unit of 3-hydroxy-1-adamantyl-(meth)acrylate in the resin, adhesion of the resist composition to a substrate was further improved ("[t]hey have conducted further studies and , as a

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result, have found that a specific resin having a polymeric unit derived from 3-hydroxy-1-adamantyl-(meth)acrylate, *in addition to* the above mentioned polymeric units, is *more effective* for improving adhesion to a substrate"). Since Kinsho is also trying to achieve a photoresist composition which exhibits firm adhesion to substrates, it is still the Examiner's position that it would have been obvious to one skilled in the art to further include the repeat unit of 3-hydroxy-1-adamantyl-(meth)acrylate in Kinsho's polymer in order to further enhance the adhesion of his resist composition onto a substrate.

Applicants also argue that the resin of claim 1 as amended can achieve those unexpected effects as described in present specification. However, the arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). Examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration include statements regarding unexpected results, commercial success, solution of a long-felt need, inoperability of the prior art, invention before the date of the reference, and allegations that the author(s) of the prior art derived the disclosed subject matter from the applicant. See MPEP 716.01(c). Besides, Sato (JP'187) is *already* drawn to a positive resist composition *reduced in surface roughness in etching* excellent in resolving power and defocus latitude in contact hole pattern formation. Thus, those unexpected results as stated by applicants are not believed to be anything unexpected.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333.

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The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sin J. Lee/
Primary Examiner, Art Unit 1795
August 31, 2008